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Additives Abyss

By I-Tang, Wu

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Additives Abyss

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Abstract

Through the news, publications and journals about misuse of food additives in Taiwan, food additives are gradually recognized by the public. However, many people were neither aware of the additives nor able to understand the importance of nutrition usage until some negative food safety issues broke out. This has a lot to do with the lack of knowledge about additives among Taiwanese. People are seldom suspicious of the unnatural taste, even get familiar with it. Therefore, food companies replace the natural ones with food additives not only to lower costs and make food attractive, but also to fulfill customers' need of tastes. This is a vicious circle.

This thesis project concentrates on making it simpler for the general public to understand the abuse of additives through a motion graphics design. The expected outcome is that the design can be used by organizations for food safety education and to further motivate and guide consumers concerned as to their health and diet.

Keyword: Food Additives, Chemical, Consumer Behaviour, Food Industry, Motion Graphics

1 Introduction

In recent years, Taiwan has repeatedly encountered food safety problems. There is a heavy dependence on prepared or processed foods containing excessive additives on account of convenience, low prices, saving time, and self-benefits. Not only are people not willing to trust the government, and the safety of food anymore, but these immoral events also disclose that food companies are eager to pursue profits at any cost.

However, a very important part is that the preferences of consumers strongly contribute to the abuse of additives. Thus, companies substitute artificial ingredients for natural ones.

What to eat and how to eat wisely have become an important question for the individual.

When consumers are no longer obsessed with the appearance or taste of food, the behavior will also affect the practice of the industry.

The idea for this thesis projects is inspired by this issue. People in Taiwan are not used to reading product labels before purchase. This is because detailed information is not available and sometimes incomprehensible to them. Therefore, they are unaware of the potential risks of additives. These factors inspired me to create a motion graphic using 2D illustration to express the function of chemical additives used in Taiwan. The objective is to introduce different categories of additives to help people recognize them and educate them not to judge food just by its appearance and to make wise and healthy choices.

The main idea is to combine additives and daily necessities. That may seem normal at first glimpse for the viewers, but when they see details, they will find out those figures express the fact that people continue to be addicted to additives, and are unable to extricate themselves from them. Through this project, people will also gain knowledge of the appearance of the food with additives. Next time, when they are purchasing foods, they can recognize healthy ones and avoid additives.

2 Situation Analysis

Food additives are, initially, used to ensure processed food can remain in a good condition to improve food preservation and prevent food poisoning; that is, to enhance the safety of food. However, since the twentieth century, due to obsession with 'delicious' food and the development of chemical technology and industry, humans have changed their lifestyles, especially dietary life. Foods become no longer for satiety only, but are forced to further meet the needs of consumers, such as appearance, taste and scent. In order to add, or bring into contact with foods during food production for the purpose of coloring, seasoning, bleaching, emulsifying, flavoring, stabilizing quality, enhancing fermentation, increasing viscosity, enriching nutritional value, preventing oxidation and improving preservation, companies have come up with replacing natural substances with chemical and artificially ones. These added nutrients which people generally think are normal and ordinary are actually food additives, and unfortunately, most of them are merely used for "preference" nowadays.

Food additives, which are almost ubiquitous and easy to be ignored by consumers, have become indispensable for the Taiwanese. These highly-processed foods with beautiful colors and fragrance are such an irresistible fatal attraction that we consume additives as well as foods on a daily basis unconsciously. Although additives are legally used and the amounts are within the regulation, if consumed a lot, they still pose threats to health. In the long term, people inadvertently take in many unnecessary additives that may do harm

to their health. Abuse of additives is one of the factors that results in the increase of prevalence rate and incidence rate of Hemodialysis population.

Now, safe and non-toxic foods become our basic requirement. Imperative as additives are for food preservation, consumer preferences often result in the abuse of food additives. For instance, if customers think that biscuits are not crispy enough, bread is not fluffy enough, and that mushrooms are not white enough, the customer attrition may skyrocket. Only when consumers are no longer obsessed with the appearance or taste of the food will the practices of the food industry be changed.

A controversial issue has been raised, faced with the crisis of food additives, whether there is a problem with the management of related food additives or the consumers have limited knowledge of food additives. At present, research on food additives is mostly for analytical methods and related safety evaluations; relatively speaking, there are few studies on consumers. Hence, this research aims at investigating the perspective of consumers about additives in Taiwan. In this project, the very first critical question is to find out now that legitimate food additives are reasonable to use, why there are endless problems and why they still do harm to people's health in the long-term situation.

One possible answer is that manufacturers are lacking in knowledge. They do not understand the damage to the human body resulting from excessive intake of additives. On the other hand, manufacturers desire quick success. Profit-oriented business brings about improper and excessive use of legal food additives. What's worse, they are blindly

emulating others in pursuit of low costs and appealing appearances, so the issue has been deteriorating. Furthermore, some factories even use banned food additives with a view to making larger profits. If the government cannot maintain strict quality control, or the manufacturers cannot be self-disciplined and are indifferent to people's health, these problems can only be resolved by consumers.

Chieh-liang Lin, a Taiwanese physician, nephrologist and toxicologist, firmly believes "Even if it is only a negligible ten dollars, it is a consumer force that cannot be ignored." Consumers' collective awakening is an indispensable force in food safety reform. Tsukasa Abe, a Japanese who used to work for a additives company, mention "I hope that everyone can hold "simple doubts", which is the first step in starting a confrontation with additives."¹

It is vital to provide knowledge of additives for the public in contemporary society. In this thesis project, I will design an illustration and a motion graphics piece that deepen people's understanding of food additives. Additionally, they teach us not to be superficial and not to adore appearance, taste and color of food, but to choose products with clear and detailed nutrition facts label and avoid choosing bulk food. I hope that through the design, common senses of food processing, health and safety can be improved and everyone can become a wise consumer. I hope to prompt the industry to gradually develop products in the direction of minimal addition; what's more. food scientists and food industry can work together to make food safer to eat.

¹ Abe Tsukasa, Horrible food additives: teach you to see through food safety tricks., 2014

3 Concept Development

The initial goal of this design effort was to create an educational and inspiring visual design that would allow users to understand the function of food additives. With these knowledge born in mind, they can make the right judgment during shopping, and choose foods with fewer additives.

Careful research of the background of additives usage in Taiwan helped me understand how the overall environments affect the industry and consumers indulging in the taste of "additives" as "food taste". This study allows me to extract elements of function and appearance from the food and apply them to my design. The key features of the additives are shown in the chart below.

Food Additives	Function
Leavening agent	Produce a foaming action that lightens and softens the mixture.
Bleach	Whiten, lighten color and remove stains.
Preservative	Prevent decomposition
Food coloring	Dye, pigment or substance that imparts color

These key features from these four additives used the most frequently are fundamentally associated with the “preference” of the food: tasting perfect, looking attractive, smelling fresh, and touching fluffy. Take bleach for instance. In the process of mass production of mushrooms, many mushrooms are 'processed and bleached' in order to make them sell well in the market. As long as scholars use ultraviolet light directly to illuminate them, there will be bright spots like stars appearing on the surface. Furthermore, the fluorescent whitening agent is very strong. Once mushrooms are dyed, consumers will have difficulty washing the agent off. Even if heated to a high temperature, the fluorescent agent will remain in the food and is hard to be destroyed. These fluorescent agents used for bleaching are all industrial, and residue left in the food is forbidden otherwise it will do harm to our brain and result in cancer. And then, appearance significantly influences buyers' behaviors and decisions, consider looks perfect equal to good product. The research of additives perfectly explains additives are irresistible because people are fully indulged in the artificial environment, with the eyes and tongue mistaking these fake senses for “delicacy”. To some extent, the core of the design is to raise users' cognition and awareness of avoiding unnecessary additives. On the other hand, there are also other natural substances for preservation that do not fit the “preference” and are called additives as well.

For instance, the ancestors did not have refrigerators and couldn't save food for a long time. Therefore, the animals that were hunted could only be preserved by pickling, smoking, and drying. If the fruit and vegetable harvests were a bumper crop, they dried,

soaked, pickled food for preservation. If the food needed to be bright, they used Safflower and *Monascus purpureus* to cook red meat and eggs.

The ancients knew how to use natural spices, like fresh onions, ginger, garlic, scallions, *Coriandrum sativum*, dried *Illicium verum*, *Zanthoxylum*, *Osmanthus fragrans*, and *Perilla frutescens*; mushrooms, kelp, and bean sprouts to add flavor, aroma, and color to food. These are considered natural food additives.

The classification of additives is crucial. In fact, after journalists exposed some illegal cases, the report about the food safety brought about negative stereotype and misunderstanding of additives.² People consider all additives to be bad. However, the main purpose of additives using is far beyond enjoyment; it is a practice of preventing food poisoning and improving food quality. In some ways, this essence of natural additives has to be presented in the design to clarify the difference. The implications are a critical factors for building the solid background knowledge. The following chart demonstrates how I determine a design concept based on the evaluation of preference of customers, natural additives, categories and functions of additives.

Food Additives	Object	Food	Public awareness	Scene
Leavening agent	Furniture (Sofa, Pillow) Air Pump	Bread, Toast	Intelligence, Memory	Living Room
Bleach	Lamp, Light	Mushroom, Bean Sprout, Radish	Brain	Study Room
Preservative	Bed, Blanket	Cheese	Cancer	Bedroom
Food coloring	Paint Brush	Sushi ingredients, Candy	Cancer	Storage

² Don't misunderstand the food additives., Food and Drug Administration, MOHW, 2017

4 Results

User testing is extremely vital for this design since it provides valuable feedbacks on how concretely the usages and functions of additives are associated with visual and graphic languages from the information. The critical part is to test whether viewers feel the same way, the so-called scenario engagement.

An main decision is to combine additives and daily necessities.



Figure 1. Daily Necessities Combine with Food Additives. 2018.

Bleach is used to whiten, lighten colors and remove stains when it added to mushrooms, bean sprouts, and radishes. The effect is similar to lights bulbs and lamps.

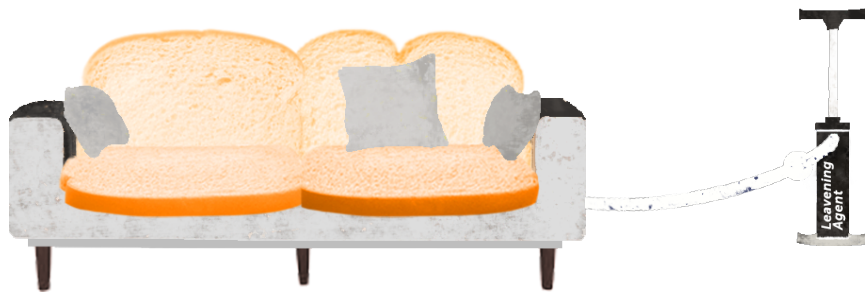


Figure 2. Leveling Agents. 2018.

Leveling agents added to bread lighten and soften the texture, which is associated with sofas and pillows.



Figure 3. Preservatives. 2018.

Cheeses will remain fresh for a longer period of time after preservatives are added.



Figure 4. Food Coloring. 2018.

Like a paint brush, food coloring is making food colorful, and thus food becomes more attractive, appealing, appetizing.

During the testing, many participants not only tried to know which additive is introducing but also intended to see more visual elements. People felt confused at first as a result of the new topic which is differs from their experience. Many people commented that the movement was too quick to even understand or before they find out what happened.

This outcome suggests that additives should be clearly illustrated with more chemical, artificial, unnatural elements so viewers can tell the difference between foods with additives and those without additives. This result also implies that visual design is not enough for the abstract issue. More detailed contents are needed so they can understand even without any background information.

Overall, the “normal daily accessories with something different” successfully raised users’ curiosity which is a beneficial factor to draw people’s attention to additives. The point is to create the design language to trigger more positive emotions from users.

5 Evaluation & Discussion

The concepts of food additives aren't well known by Taiwanese until some serious problems are unveiled from news and publications. Taiwan is still in the early phase of its popularization of this topic. Unlike other countries with clear, powerful, and concrete regulations that have already established, Taiwan has just began the long journey. Therefore, an impactful meaning of this thesis work is more than solving the issues of additives. Also, it is a discussion and an exploration of a possible way to educate citizens in a more interesting way.

People usually rely on their senses to choose food, which is sometimes to no avail because artificial foods are often more attractive than natural ones. Is our intuition, sense, and preference really reliable and can let us make the right decision to pick healthful food? Do additives still have its reasons to exist no matter what the outcome will be? Is it necessary to add some additives just for appealing appearances? This design is a discussion of these questions.

This motion graphic provides users with vivid ways to learn and start knowing food on their own initiative. Instead of straight-forward educational method such as reading an article, consumers are able to see actual outcomes of the additives from applying to functioning with voice-over narrative. Bearing the intent of the design in mind, people will become capable of judging the food appearance, scent, and texture.

For instance, during the grocery shopping day, they will be able to understand the nutrition facts and ingredients, which in turn prompts a healthier and wiser lifestyle with solid knowledge of additives.

6 Conclusions

Until now, the development of food industry in Taiwan is still in progress, which is just the beginning of a long journey. People will come up with more and more chemical additives for their convenience.

This thesis work is a discussion of providing a method to understand the secret of the food industry and an exploration of the possible educational ways. Instead of passively learning from news and publications when the issue becomes serious, we could gain the knowledge in advance. What makes this project challenging is facing an extremely abstract topic, so whether viewers can get the connection of the idea is the most critical part to solve the problem perfectly. Unfortunately, the appropriate solution to this topic is still unknown. Although the motion graphic piece provides a guidance for users, the Taiwan government still needs to come up with a better and clearer direction for the food industry in the future.

However, if there is any possibility that this motion graphic piece can arouse and capture people's attention to this issue, it is worthy to try it.

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